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CZECHOSLOVAK SOCIALIST REPUBLIC

SUMMARY OF NATIONAL PAPER*

The achievements and perspectives of Czechoslovak socialist development are broadly connected with the utilization of science and technology results. Socialism has created the most favourable conditions for scientific activities; but science, and especially science-based technology, has become the main factor of dynamic development of society, and an instrument for social changes in all spheres of the economy, culture and way of life. The principle of all-round development of science and the utilization of results for the social development of society is contained in the main controlling documents of socialist society. The economic-organizational and cultural-educational function of the socialist State has expression, too, in efforts for development of science and practical exploitation of its results. The development of science and exploitation of its results are based upon all social-economic demands. State R and D policy represents, nowadays, one of the main priorities of State activities.

The objective-oriented development of science and technology has resulted in socialist Czechoslovakia in extraordinary achievements. National income increased in 1976 (in comparison with the year 1948) 5.3 times, and per capita income increased 4.5 times. The main factor of the national income increase during the period 1948-1976 was labour productivity (contribution of labour productivity to this increase was more than four-fifths; presently it is more than nine-tenths). Dynamic national-income growth has enabled a permanent increase in the living standards of the population and productive potentiality of the economy. Personal consumption increased during the period 1948-1976 almost four times, and consumption financed by society (education, culture, health services, etc.) increased almost 5.8 times. Capital accumulation increased 12.7 times.

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The above-mentioned results were reached mainly by development of national scientific potentiality. Its development is an integral part of society's social development. The total labour force in science and R and D was about 10,000 in the early 1950s, and in 1977 reached 170,000. There are 400 research institutes and about 1,500 research bodies within individual factories and universities. These institutes and bodies cover all basic branches of industry. In the period 1976-1980, expenditures for science and R and D will reach 92 milliards of Czechoslovak Koruna, i.e. more than 18 milliards per year. This amount represents 3.6-3.8 per cent of national income. An important source for innovations is the activity of workers and socialist competition. In 1977, more than 270,000 rationalization proposals were submitted; and almost 3.5 million employees take part in socialist competition.

The development of science and technology is based upon the high standard of employees' education. Nowadays, 330,000 of the labour force have received higher education and 1,160 have reached a secondary-school-level of education. One hundred and thirty thousand students are enrolled for bachelors' and masters' degrees, and 450,000 students attend secondary schools. One third of students who attend secondary schools continues studies for bachelors' and masters' degrees. There is a continuing trend for formation of university centres. The system of workers' training is at a high level; there is also a broad network of after-school facilities. Educational facilities are thus available for a lifetime, thus substantially supporting democratization, with a free-of-charge system for all levels of education.

Science and technology have played the most decisive role in the socialist development of Czechoslovakia. They have created a basis for innovative processes in industry; and have fundamentally contributed to the creation of mass production in agriculture, to industrialization of the building industry and to development of a modern infrastructure. Science and technology contribute substantially to improvements in the health services, to life expectancy and to a high level in the quality of life. During recent years, attention has been devoted to ecological problems. The national paper contains a description of some results of science and technology achievements. These results reveal that the adaptation of science and technology to social goals, together with changes in the structure of the economy, have proved to be correct. Economic development is based on industry - and especially on machinery. The share of machinery in industrial output in 1976 was one third. The growth of the chemicals industry is steady; its share in industrial output is 8.5 per cent.

The development of science and technology has become, under socialist principles of advancement, an important factor in the solution of the problem of equalizing production forces and of the nationality problem. Unequal development in pre-war Czechoslovakia led to under-development in Slovakia, which became evident in its low level of production output, an overcrowded agricultural industry, low standards of living, and low levels of workers' training. Twenty-five per cent of Czechoslovakia's total population lived in Slovakia; its share of the national income was 12 per cent; and emigration was increasing. Post-war development was based on the industrialization of Slovakia and an all-round growth of her economic structure and infrastructure. Present economic and social levels in Slovakia are equal to the Czech ones. Slovakia now contributes almost 28 per cent to the

total industrial output of Czechoslovakia. During the years 1949-1976 industrial output increased 20 times. The national income per capita of Slovakia amounts to 94 per cent of the Czech one due to the different economic structure. There were 238 students in secondary and vocational schools, and 103 undergraduates per 10,000 inhabitants in Slovakia (corresponding numbers for Bohemia were 191 and 77). Slovakia's R and D base consisted of 2,200 employees in 1950; the present figure is 43,000. The development of science potentiality was an important accelerating factor for social changes in Slovakia, and for speedy technological development in all fields of production. Science potentiality growth in Slovakia, within the framework of total Czechoslovak science and technology policy, contributes to the rational exploitation of a skilled labour force, proportional growth of production forces, and increased living standards.

Under socialism, the use of R and D for achievement of socio-economic goals is connected with a united science policy. This science policy includes provision of funds for R and D, determination of these funds for different projects of socio-economic development, and determination of forms, methods and resources for achievement of planned goals. The use of basic principles of R and D planning, assistance from the State for development of research institutes (especially in basic research), Government supervision of postgraduate education for science needs - all these are principles which have been adhered to. They have also contributed to a proportional growth in different branches of science and to the most suitable form of their control. Permanent improvement of R and D planning and control is one of the main tasks of the socialist State by means of its administrative bodies responsible for control of research and development.

Versatile utilization of R and D results depends fully, in the conditions of the Czechoslovak economy, upon intensification of scientific and technological co-operation. State policy in this field is based on united principles of Czechoslovak foreign and scientific policy; and therefore also on scientific co-operation with other socialist States. Scientific and technological co-operation with other socialist States takes bilateral and multilateral forms, from co-ordination of research efforts to international co-operative research teams and institutes. During 1965-1977, Czechoslovakia produced 17,000 documents in different fields and sent 85,000 specialists to other countries. Fifty per cent of all major projects (financed from the budget) in the plan for the years 1976-1980 will be carried out in co-operation with other countries. Scientific and technological co-operation leads to accelerated activity in this field. Czechoslovakia cannot carry out all its projects alone owing to limited means and a restricted labour force in R and D. Co-operation thus enables maintenance of the economy at a global level.

In accordance with the United Nations Charter and the Final Act of the CSCE, Czechoslovakia strives towards equal and friendly contacts with other countries, in which an important role is played by scientific and technological contacts. Agreements on scientific and technological co-operation have been concluded with many countries, and licensing activities have increased. Czechoslovakia also strives towards an intensification of these connexions, increased mutual economic and scientific relations in connexion with implementation of programmes concerning equal conditions for co-operation among countries with different political systems, and the removal of barriers which inhibit such co-operation. It considers the

field of international scientific and technological co-operation an important means for economic and social development of all countries and for increasing peaceful co-existence among nations. Czechoslovakia will contribute all possible experience to the over-all utilization of science and technology for peaceful purposes.

Czechoslovakia fully observes those principles which are firm components of its political and economic relations with developing countries. The main purpose of Czechoslovak technological aid to developing countries is to contribute to their social and economic development and gradual strengthening of economic independence.

Czechoslovak technical aid for developing countries includes the following:

(a) The sending abroad of Czechoslovak specialists (about 500 yearly),

(b) The provision for foreigners of training in Czechoslovakia to obtain basic and advanced skills (more than 300 yearly);

(c) The provision of undergraduate and postgraduate education for foreigners (about 3,000 yearly);

(d) The organization of training courses for participants from developing countries; and

(e) The provision of engineering consultative, projectional and R and D services.

Czechoslovakia is able to contribute to the broad needs of developing countries mainly in the following fields, in which high levels have been reached: exploration, and exploitation of mineral and raw material deposits; agriculture and forestry; building; network of power stations; metallurgy, machinery; chemicals; light and food industry; processing industry; and health.

In all these fields, Czechoslovakia is able to obtain high-quality equipment and to start negotiations with individual developing countries on industrial co-operation in the above-mentioned fields.

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MALTA

SUMMARY OF NATIONAL PAPER*

The national paper:

- aims at indicating the main goals and objectives of government policy in the areas of interest, namely: (a) Science and technology for development; (b) Agriculture; (c) Fisheries; (d) Industrialization; (e) Energy; and (f) Health and environment;

- aims at identifying problems encountered in the application of science and technology towards solving socio-economic problems in these areas of interest and indicating the steps necessary to solve these problems; and

- indicates how regional co-operation can contribute towards a solution of some of the more pressing socio-economic problems in the region.

Introduction

Some of the political, economic and social objectives of Malta's international and national policies are mentioned together with some of the obstacles that will have to be overcome in order to achieve these objectives, namely the lack of natural resources and an inadequate number of specialized personnel in many of the more advanced scientific and technological fields. On the credit side, Malta possesses a good climate, has relatively no pollution problems, possesses a large amount of skilled manpower, particularly in the trades, and a tertiary education system that provides general basic scientific and technological training.

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Science and technology for development

Research and development in science and technology is necessarily limited by the comparative shortage of specialists, inadequate financial resources and a greater need for adaptive and applied research than for purely fundamental work. Malta will, therefore, have to continue to depend on basic research performed in overseas institutions for updating its technology and will have to concentrate on applying research results obtained elsewhere.

Agriculture

Government policy in agriculture is to reduce dependence on imports, meet demand and eventually increase exports of agricultural produce through application of science and technology. The main obstacles encountered in applying science and technology to agricultural development are the lack of technical manpower to study application, inadequate access to scientific and technology information, and the educational status of labour on the average farm. Plans to overcome these obstacles include strengthening of the scientific and technological infrastructure, improving the information acquisition system, and training of farmers.

Fisheries

The annual catch, though improving annually, is still considerably too low. Government policy has as its main objective the meeting of local demand for fish and shellfish to the greatest possible extent from local sources. These objectives can be achieved through the application of science and technology especially in the field of aquaculture, fish and shellfish farming, etc.

Industrialization

Malta's efforts over the past few years to change its economy from one based on revenue from military bases to one based on revenue from tourism, and the servicing and manufacturing industries, are outlined. Some of the more important difficulties Malta has encountered in its attempts to acquire foreign technology are also mentioned - for example, the prohibitive cost of expert assistance and equipment, obsolescence or incompatibility of machinery, unfavourable conditions for the transfer of technology, etc.

Energy

The Government aims at reducing dependence on oil by encouraging a greater utilization of alternative sources of energy. A Mediterranean centre devoted to the practical development and application of wind and solar energy for the benefit of, and to provide services to, the countries in the Mediterranean region should be set up in Malta.

Health and environment

It is recognized that science and technology has an important role to play in the further development of public health and environmental protection. Financial problems and the lack of adequately-trained personnel and educational facilities are the main problems that need to be solved.

General economic policy

Government economic policy is one of a mixed economy based on local and/or foreign and/or government investments in various manufacturing and servicing industry sectors, such as: maintenance and servicing of aircraft, ships, heavy machinery, oil rigs and heavy electrical equipment; trans-shipment, warehousing, bunkering and processing of goods from distant countries on their way to European and African markets; metal manufacturing and engineering; electrical engineering; chemicals; pharmaceuticals; rubber and leather products; shipbuilding; electronics and optics.

General recommendations

Recommendations on the identification of suppliers of technology and partners, on reducing the price paid for the transfer of technology, on acquisition of experts and on international co-operation between developing nations in the acquisition of technology are included for consideration by the European Regional Meeting.